ABSTRACT

An apparatus for identifying an unknown DNA sample. The apparatus includes a plurality of detection nodes, each of which is operable for allowing an interaction between a known DNA sample and an unknown DNA sample, and for generating an output signal if hybridization occurs between the known DNA sample and the unknown DNA sample. The apparatus further includes a decoder operative for receiving an input signal indicative of which of the plurality of detection nodes should be selected for processing and for outputting control signals which operate to activate the selected detection node. Further, each of the detection nodes comprises a first floating gate transistor having a conductance value which varies if hybridization occurs between the known DNA sample and the unknown DNA sample contained in the first transistor. This change of conductance value is utilized to generate the output signal which indicates that hybridization has occurred.